SYSY Antibodies

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GLUT4

Cat.No. 235 003; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were added for stabilization. For **reconstitution** add 50 µl H_2O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	**WB**: 1 : 1000 (AP staining) **IP**: not tested yet **ICC**: not tested yet **IHC**: 1 : 500 **IHC-P (FFPE)**: 1 : 200
Immunogen	Synthetic peptide corresponding to AA 495 to 509 from human GLUT4 (UniProt Id: P14672)
Reactivity	Reacts with: human (P14672), rat (P19357), mouse (P14142), pig. Other species not tested yet.
Matching control	235-0P

TO BE USED IN VITRO / FOR RESEARCH ONLY
NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

Background

Insulin stimulates glucose transport into muscle and fat cells by the redistribution of the **glu**cose **t**ransporters 1 and **4** (GLUT 1 and **GLUT 4**) from intracellular membrane compartments to the cell surface via GLUT carrying vesicles.
Formation of soluble SNARE complexes mediate the docking and fusion of GLUT 4-containing vesicles with the plasma membrane.

Selected References for 235 003

CHC22 clathrin mediates traffic from early secretory compartments for human GLUT4 pathway biogenesis.
Camus SM, Camus MD, Figueras-Novoa C, Boncompain G, Sadacca LA, Esk C, Bigot A, Gould GW, Kioumourtzoglou D, Perez F, Bryant NJ, et al.
The Journal of cell biology (2020) 2191: . . **IHC; tested species: human**

AMP-activated protein kinase is activated in adipose tissue of individuals with type 2 diabetes treated with metformin: a randomised glycaemia-controlled crossover study.
Boyle JG, Logan PJ, Jones GC, Small M, Sattar N, Connell JM, Cleland SJ, Salt IP
Diabetologia (2011) 547: 1799-809. . **WB**

EFR3 and phosphatidylinositol 4-kinase IIIα regulate insulin-stimulated glucose transport and GLUT4 dispersal in 3T3-L1 adipocytes.
Koester AM, Geiser A, Laidlaw KME, Morris S, Cutiongco MFA, Stirrat L, Gadegaard N, Boles E, Black HL, Bryant NJ, Gould GW, et al.
Bioscience reports (2022) 427: . . **WB; tested species: mouse**

Sorting of GLUT4 into its insulin-sensitive store requires the Sec1/Munc18 protein mVps45.
Roccisana J, Sadler JB, Bryant NJ, Gould GW
Molecular biology of the cell (2013) 2415: 2389-97. . **WB**

Selected General References

DOC2B: a novel syntaxin-4 binding protein mediating insulin-regulated GLUT4 vesicle fusion in adipocytes.
Fukuda N et al. Diabetes (2009) PubMed:19033398

Regulation of insulin secretion and GLUT4 trafficking by the calcium sensor synaptotagmin VII.
Li Y et al. Biochem. Biophys. Res. Commun. (2007) PubMed:17720139

Mechanism and regulation of GLUT-4 vesicle fusion in muscle and fat cells.
Foster LJ et al. Am. J. Physiol., Cell Physiol. (2000) PubMed:11003568

Regulation of insulin-stimulated GLUT4 translocation by Munc18c in 3T3L1 adipocytes.
Thurmond DC et al. J. Biol. Chem. (1998) PubMed:9837979

Intracellular targeting of the insulin-regulatable glucose transporter (GLUT4) is isoform specific and independent of cell type.
Haney PM et al. J. Cell Biol. (1991) PubMed:1651337

Access the online factsheet including applicable protocols at https://sysy.com/product/235003 or scan the QR-code.

FAQ - How should I store my antibody?

Shipping Conditions

- All SYSY antibodies and control proteins/peptides are shipped lyophilized (vacuum freeze-dried). In this form, they remain stable without loss of quality at ambient temperatures for several weeks.

Storage of Sealed Vials after Delivery

- **Unlabeled** and **biotin-labeled antibodies** and **control proteins** should be stored at **4°C** before reconstitution. **Do not freeze lyophilized antibodies**. Temperatures below 0°C may impair performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long-term storage of lyophilized fluorophore-conjugates may cause aggregation.
- **Control peptides** should be stored at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- **Do not use frost-free ("no-frost") freezers.** These units periodically warm to remove ice buildup, causing freeze–thaw cycles that can damage antibodies.
- Store vials in areas with minimal temperature fluctuation - preferably toward the back of the freezer, not on the door.
- Aliquot reconstituted antibodies and store at –20°C to –80°C.
- Avoid very small aliquots (<20 µL), as evaporation and adsorption to tube surfaces can reduce antibody concentration and activity.
- Use the smallest practical storage vial to minimize surface area.
- Adding glycerol to a final concentration of 50% prevents freezing at -20°C, allowing storage in liquid form and effectively avoiding freeze–thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C

Monoclonal Antibodies

- **Ascites and hybridoma supernatant:** Store at -20°C to -80°C
  Prolonged storage at 4°C is not recommended, as proteases present in ascites may degrade antibodies.
- **Purified IgG:** Store at -20°C to -80°C
  Adding a carrier protein (e.g., BSA) enhances long-term stability.
  Many SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Polyclonal Antibodies

- **Crude antisera:** Can be stored at 4°C with antimicrobials added, but -20°C to -80°C is preferred
- **Affinity-purified antibodies:** Less stable than antisera; store at -20°C to -80°C
  Adding a carrier protein such as BSA improves long-term stability.
  Most SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Fluorescence-labeled Antibodies

- Store as a liquid with 1:1 (v/v) glycerol at -20°C, and protect from light exposure

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All purified SYSY antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the volume of deionized water specified in the corresponding datasheet. If a larger final volume is desired, first add the recommended amount of water, then adjust with PBS and, if needed, add a stabilizing carrier protein (e.g., BSA) to a final concentration of 2%. Some SYSY antibodies already contain albumin; please take this into account before adding additional carrier protein.

For complete reconstitution, carefully remove the vial cap. After adding water, briefly vortex the solution. To collect the liquid at the bottom of the vial, place the vial inside a 50 ml centrifuge tube padded with paper and centrifuge briefly.

- If desired, small amounts of azide or thimerosal may be added to prevent microbial growth. This is particularly recommended when storing an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add glycerol 1:1 (v/v) to achieve a final concentration of 50%. This prevents freezing at –20°C and keeps the antibody in liquid form, effectively avoiding freeze–thaw cycles.
- Glycerol may also be added to unlabeled primary antibodies as a general measure to prevent freeze–thaw damage.
- For further guidance, please refer to our **storage tips** and recommendations for reconstituted antibodies, control peptides, and control proteins.